

U.S.S.N. 09/380,773
Filed: September 3, 1999
AMENDMENT AND RESPONSE TO OFFICE ACTION

In the Claims

1-37. (canceled)

38. (previously presented) A method for the preparation of a polyester, comprising the steps of: culturing recombinant cells under conditions suitable for the production of the polyester, wherein the recombinant cells have been genetically engineered to express a polyhydroxyalkanoic acid synthase and a fatty acid:acyl-coenzyme A transferase protein under the control of a single promoter.

39. (original) The method of claim 38, wherein the cell is a plant cell, mammalian cell, insect cell, fungal cell, or bacterial cell.

40. (original) The method of claim 39, wherein the cell is a plant cell.

41. (original) The method of claim 39, wherein the cell is a bacterial cell.

42. (original) The method of claim 41, wherein the cell is *Escherichia coli*.

43. (original) The method of claim 42, wherein the bacterial cell is *Escherichia coli* strain XL1-Blue.

44. (original) The method of claim 38, wherein the polyhydroxyalkanoic acid synthase protein is a polyhydroxyalkanoic acid synthase protein from *Alcaligenes eutrophus*.

45. (original) The method of claim 44, wherein the *Alcaligenes eutrophus* polyhydroxyalkanoic acid synthase protein is encoded by the *Alcaligenes eutrophus* polyhydroxyalkanoic acid synthase structural gene.

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46. (original) The method of claim 38, wherein the fatty acid:acyl-coenzyme A transferase protein is a 4-hydroxybutyrate:acyl-coenzyme A transferase protein.
47. (original) The method of claim 46, wherein the 4-hydroxybutyrate:acyl-coenzyme A transferase protein is a *Clostridium kluyveri* 4-hydroxybutyrate:acyl-coenzyme A transferase protein.
48. (original) The method of claim 47, wherein the *Clostridium kluyveri* 4-hydroxybutyrate:acyl-coenzyme A transferase protein is encoded by *Clostridium kluyveri* *orfZ* 4-hydroxybutyrate:acyl-coenzyme A transferase structural gene.
49. (original) The method of claim 38, wherein the culture contains glucose.
50. (currently amended) The method of claim 38, wherein the culture contains materials selected from the group consisting of 4-hydroxybutyric acid, the sodium salt of 4-hydroxybutyric acid, γ -butyrolactone, 1,4-butanediol, 4-hydroxyvaleric acid, γ -valerolactone, 1,4-pentanediol, 3-hydroxybutyric acid, the sodium salt of 3-hydroxybutyric acid, a hydroxypropionic acid, a hydroxybutyric acid, a hydroxyvaleric acid, a hydroxycaproic acid, a hydroxyheptanoic acid, a hydroxyoctanoic acid, a hydroxydecanoic acid, γ -caprolactone, γ -heptanolactone, γ -octanolactone, and γ -decanolactone.
51. (original) The method of claim 38, wherein the culture contains molecular oxygen.

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52. (previously presented) The method of claim 38, wherein the cell expresses a heterologous nucleic acid segment encoding a protein capable of hydrolyzing a lactone to the corresponding hydroxyalkanoic acid.

53. (previously presented) The method of claim 38, wherein the cell expresses heterologous nucleic acid segments encoding 2-oxyglutarate decarboxylase protein and a heterologous 4-hydroxybutyrate dehydrogenase protein.

54. (previously presented) The method of claim 38, wherein the cell expresses a heterologous nucleic acid segment encoding a protein selected from the group consisting of a 2-methylcitrate synthase protein, a 2-methylcitrate dehydratase protein, 2-methylisocitrate dehydratase protein, 2-methylisocitrate lyase protein, a succinate:acetyl-CoA transferase protein, a succinate-semialdehyde dehydrogenase protein, and a 4-hydroxybutyrate dehydrogenase protein.

55. (previously presented) The method of claim 38, wherein the cell expresses nucleic acid segments encoding succinate-semialdehyde dehydrogenase protein, and a 4-hydroxybutyrate dehydrogenase protein.

56. (previously presented) The method of claim 38, wherein the cell expresses nucleic acid segments encoding 2-methylisocitrate dehydratase protein, a 2-methylisocitrate dehydratase protein, a 2-methylisocitrate dehydratase protein, a 2-methylisocitrate lyase protein, a succinate:acetyl-CoA transferase protein, a succinate-semialdehyde dehydrogenase protein, and a 4-hydroxybutyrate dehydrogenase protein.

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57. (original) The method of claim 38, wherein the polyester is a homopolyester.
58. (original) The method of claim 57, wherein the homopolyester is poly(4-hydroxybutyric acid).
59. (original) The method of claim 57, wherein the homopolyester is poly(3-hydroxybutyric acid).
60. (original) The method of claim 38, wherein the polyester is a copolyester.
61. (original) The method of claim 60, wherein the copolyester is poly(3-hydroxybutyric acid-co-4-hydroxybutyric acid).
- 62-63. (canceled)
64. (previously presented) The method of claim 38 further comprising separating the polyester from the recombinant cells.